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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,602	11/25/2003	Pawan Goyal	ARC920030077US1	5994

55508 7590 05/16/2006

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EXAMINER

DAYE, CHELCIE L

ART UNIT	PAPER NUMBER
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2161

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/721,602

Applicant(s)

GOYAL, PAWAN

Examiner

Chelcie Daye

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/25/03&4/16/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is issued in response to Application filed November 25, 2003.
2. Claims 1-24 and 26 are pending.

Claim Objections

3. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). Corrections are needed in the instant application. The claims as presented by the applicant are claim numbers 24 and 26; therefore claim number 25 is missing.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 1-24 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Examiner is unclear how applicant is defining the "log record write" and the "data record write". Since the "log record write" contains data itself, it is possible for the "log record write" to be interchangeable with the "data record write". In order to further

prosecution, examiner interprets the "log record write" to be a log file and the "data record write" to be a data file.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanai (US Patent No. 6,502,205) filed November 10, 2000, in view of Shomler (US Patent No. 5,623,599) filed July 29, 1994.**

Regarding Claim 1, Yanai discloses a method for asynchronously remotely copying database content changes from a primary site to a remote site, the method comprising:

associating a sequential identification with each respective log record write and each corresponding data record write received at the primary site (column 32, lines 34-58 and column 33, lines 7-10, Yanai). However, Yanai is silent with respect to asynchronously remotely copying each respective log record write from the primary site to the remote site; receiving an acknowledgement at the primary site, the acknowledgement corresponding to a log record write that has been completed at the remote site; and asynchronously remotely copying each

data record write having a sequential identification that is prior to or equal to the sequential identification of the log record write corresponding to the received acknowledgement. On the other hand, Shomler discloses asynchronously remotely copying each respective log record write from the primary site to the remote site (column 4, lines 10-17, Shomler); receiving an acknowledgement at the primary site, the acknowledgement corresponding to a log record write that has been completed at the remote site (column 9, lines 33-39, Shomler); and asynchronously remotely copying each data record write having a sequential identification that is prior to or equal to the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler). Yanai and Shomler are analogous art because they are from the same field of endeavor of maintaining a copy of data stored at a remote location from the primary data storage device. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Shomler's teachings into the Yanai system. A skilled artisan would have been motivated to combine as suggested by Shomler at column 3, lines 9-14, in order to secure transactions at a remote site without interrupting the flow of other transactions in the system. Therefore, such a system should be simple to implement, efficient and non-disruptive to existing asynchronous copy systems.

Regarding Claims 2 and 8, the combination of Yanai in view of Shomler, disclose the method wherein the sequential identification is a monotonically increasing identification number (column 11, lines 38-46, Shomler).

Regarding Claims 3 and 9, the combination of Yanai in view of Shomler, disclose the method wherein the sequential identification is a monotonically increasing time-stamp identification (column 7, lines 43-60, Shomler).

Regarding Claim 4, the combination of Yanai in view of Shomler, disclose the method wherein a log record write is asynchronously remotely copied from the primary site to the remote site before a data record write is asynchronously remotely copied from the primary site to the remote site (column 10, lines 43-67, Yanai).

Regarding Claim 5, the combination of Yanai in view of Shomler, disclose the method wherein each log record write is a log block (column 9, lines 26-32, Shomler)¹ and each data record write is a data block write (column 9, lines 18-20, Shomler)².

Regarding Claims 6 and 7, the combination of Yanai in view of Shomler, disclose the method further comprising:

asynchronously receiving a log record write at the remote site (column 4, lines 10-17, Shomler);

storing the received log record write at the remote site (column 10, lines 43-58, Yanai);

sending an acknowledgement from the remote site to the primary site when the received log record write is complete (column 10, lines 1-8, Shomler);

asynchronously receiving a data record write at the remote site from the primary site (column 10, lines 34-45, Shomler); and

storing the received data record write (column 10, lines 43-58, Yanai).

Regarding Claim 10, the combination of Yanai in view of Shomler, disclose a storage system for asynchronously remotely copying content changes stored in the storage system, the system comprising:

a primary site having a storage system separately storing log records and data records (Fig.12, item 214, Yanai);

a remote site having a storage system separately storing log records and a data records (Fig.12, item 246, Yanai),

the primary site associating a sequential identification with each respective log record write and each corresponding data record write occurring at the primary site (column 32, lines 34-58 and column 33, lines 7-10, Yanai) and asynchronously remotely copying each respective log record write from the

¹ Examiner Notes: A token is a primitive block of structured text, which therefore corresponds with the log

primary site to the remote site (column 4, lines 10-17, Shomler), the remote site sending to the primary site an acknowledgement corresponding to a log record write that has been completed at the remote site (column 10, lines 1-8, Shomler), and the primary site asynchronously remotely copying to the remote site each data record write having a sequential identification that is prior to or equal to the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler).

Regarding Claim 11, the combination of Yanai in view of Shomler, disclose the system wherein the sequential identification is a monotonically increasing identification number (column 11, lines 38-46, Shomler).

Regarding Claim 12, the combination of Yanai in view of Shomler, disclose the system wherein the sequential identification is a monotonically increasing time-stamp identification (column 7, lines 43-60, Shomler).

Regarding Claim 13, the combination of Yanai in view of Shomler, disclose the system wherein a log record write is asynchronously remotely copied from the primary site to the remote site before a data record write is asynchronously remotely copied from the primary site to the remote site (column 10, lines 43-67, Yanai).

Regarding Claim 14, the combination of Yanai in view of Shomler, disclose the method wherein each log record write is a log block (column 9, lines 26-32, Shomler) and each data record write is a data block write (column 9, lines 18-20, Shomler).

Regarding Claim 15, the combination of Yanai in view of Shomler, disclose a primary site of a distributed storage system, the system comprising:
a storage system separately storing log records and data records (Fig.12, item 214, Yanai); and

a controller (Fig.1, item 16, Yanai) associating a sequential identification with each respective log record write and each corresponding data record write occurring at the primary site (column 32, lines 34-58 and column 33, lines 7-10, Yanai) and asynchronously remotely copying each respective log record write from the primary site to a remote site (column 4, lines 10-17, Shomler), the controller receiving an acknowledgement corresponding to a log record write that has been completed at the remote site and (column 9, lines 33-39, Shomler), in response, asynchronously remotely copying to the remote site each data record write having a sequential identification that is prior to or equal to the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler).

² Examiner Notes: "Token" corresponds to block.

Regarding Claim 16, the combination of Yanai in view of Shomler, disclose the system wherein the sequential identification is a monotonically increasing identification number (column 11, lines 38-46, Shomler).

Regarding Claim 17, the combination of Yanai in view of Shomler, disclose the system wherein the sequential identification is a monotonically increasing time-stamp identification (column 7, lines 43-60, Shomler).

Regarding Claim 18, the combination of Yanai in view of Shomler, disclose the system wherein a log record write is asynchronously remotely copied from the primary site to the remote site before a data record write is asynchronously remotely copied from the primary site to the remote site (column 10, lines 43-67, Yanai).

Regarding Claim 19, the combination of Yanai in view of Shomler, disclose the method wherein each log record write is a log block (column 9, lines 26-32, Shomler) and each data record write is a data block write (column 9, lines 18-20, Shomler).

Regarding Claim 20, the combination of Yanai in view of Shomler, disclose a remote site of a distributed storage system, the system comprising:

a storage system separately storing log records and data records (Fig. 12, item 246, Yanai),

a controller (Fig. 1, item 44, Yanai) asynchronously receiving a log record write from a primary site (column 4, lines 10-17, Shomler), each respective log record received at the remote site having an associated sequential identification and a corresponding data record write (column 32, lines 34-58 and column 33, lines 7-10, Yanai), storing the received log record write in the storage system (column 10, lines 43-58, Yanai) and sending an acknowledgement from the remote site to the primary site when the received log record write is complete (column 10, lines 1-8, Shomler).

Regarding Claim 21, the combination of Yanai in view of Shomler, disclose the remote site wherein the controller further asynchronously receives a data record write from the primary site (column 10, lines 34-45, Shomler), each received data record write having a sequential identification that is prior to or equal to the sequential identification of the log record write corresponding to the received acknowledgement (column 10, lines 34-45, Shomler), and stores the received data record write (column 10, lines 43-58, Yanai).

Regarding Claim 22, the combination of Yanai in view of Shomler, disclose the remote site wherein the sequential identification is a monotonically increasing identification number (column 11, lines 38-46, Shomler).

Regarding Claim 23, the combination of Yanai in view of Shomler, disclose the remote site wherein the sequential identification is a monotonically increasing time-stamp identification (column 7, lines 43-60, Shomler).

Regarding Claim 24, the combination of Yanai in view of Shomler, disclose the remote site wherein a log record write is asynchronously remotely copied from the primary site to the remote site before a data record write is asynchronously remotely copied from the primary site to the remote site (column 10, lines 43-67, Yanai).

Regarding Claim 26, the combination of Yanai in view of Shomler, disclose the remote site wherein each log record write is a log block (column 9, lines 26-32, Shomler) and each data record write is a data block write (column 9, lines 18-20, Shomler).

Art Unit: 2161


Points of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chelcie Daye whose telephone number is 571-272-3891. The examiner can normally be reached on M-F, 7:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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May 5, 2006


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